

AMENDED CLAIMS WITH AMENDMENT MARKINGS

1. A composite rigid foam structure comprising:
a rigid foam substrate having a surface and pores, said pores having an average diameter, and
a formed in situ [continuous] skin substantially uniformly bonded directly to at least a portion of said surface, said skin generally penetrating said rigid foam substrate to a depth of less than about 5 of said average pore diameters, said skin having a substantially uniform interconnected porosity.
2. A composite structure of claim 1, wherein said rigid foam substrate comprises an inorganic material having at least from about 20 to 30 pores per linear inch.
3. A composite structure of claim 1, wherein the rigid foam substrate and the skin are made of about the same inorganic materials.
4. The composite structure of claim 1, wherein at least one of said rigid foam substrate and skin comprises metal.
5. The composite structure of claim 1, wherein said foam substrate and said skin comprise different metals.

6. The composite structure of claim 1, wherein at least one of said rigid foam substrate and skin comprises ceramic.

7. The composite structure of claim 1, wherein said rigid foam substrate comprises carbon.

8. The composite structure of claim 1, wherein at least one of said rigid foam substrate and skin comprises glass.

9. The composite structure of claim 1, wherein said rigid foam substrate and said skin comprise polymers.

10. The composite structure of claim 1, wherein one of said rigid foam substrate and said skin comprises metal and the other comprises ceramic.

11. The composite structure of claim 1, wherein said rigid foam substrate comprises ceramic and said skin is comprises molybdenum disilicide.

12. The composite structure of claim 1 wherein the continuous skin has penetrated into said rigid foam substrate for a depth of less than approximately 2 average pore diameters.

13. A method of forming a composite rigid foam structure comprising:

selecting a solid three-dimensional rigid foam substrate having at least one surface and pores, said pores in said foam substrate being defined by their peripheries and having an average diameter, and

thermally spraying a material that is at least partially fluid onto said surface to form a solid phase skin on said surface, said skin being attached to substantially all of said peripheries, and said skin extending no more than about 5 average pore diameters into said rigid foam substrate.

14. A method of forming a composite foam structure of claim 13 including selecting a hollow three-dimensional rigid foam substrate having inner and outer surfaces, and thermally spraying said material on at least one of said inner and outer surfaces.

REMARKS

Reconsideration of this application in view of the foregoing amendments and the following remarks is respectfully requested. Claim 1 has been amended to more clearly define the invention. The present invention, as noted in the paragraph bridging pages 9 and 10 of the specification, is particularly well suited for use in filtering and transpiration cooling applications.

Due to personnel changes at the Assignee of the subject application, the Pawlowski reference, a book, is not immediately available for recopying. It is out of print. A copy has been ordered, and a copy of the pertinent parts will be made and forwarded as soon as the book becomes available.

A proposed drawing correction is enclosed. This has been forwarded on a separate paper addressed to the draftsman.

The rejection of claims 1-3, 6 and 12 as anticipated by Tomita '535 is respectfully traversed. Anticipation requires a teaching of the entire claimed invention within a single reference. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claims 1, 6 and 12 as anticipated by Okada Japanese publication 61-268850 or 63-287 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claims 1, 6 and 12 as anticipated by Kallisch DE 3905080 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claims 1, 6 and 12 as anticipated by or obvious over Brockmeyer '621 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity. Borckmeyer does not disclose any reason for or advantage to the use of a porous coating.

The rejection of claims 1-3, 6 and 12 as anticipated by or obvious over Morris '595 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity. Morris does not disclose any reason for or advantage to the use of a porous coating.

The rejection of claims 1, 6 and 12 as anticipated by Shogo Japanese Publication 61-042468 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claims 1, 2, 6 and 12 as anticipated by Hagle '151 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claims 1, 6 and 12 as anticipated by Sherman "Refractory Metal Foams" is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claims 1, 3, 6 and 12 as anticipated by Mano '030 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claims 1, 6 and 11 as anticipated by Upadhya '903 is respectfully traversed. There is no teaching or suggestion of a skin having a substantially uniform interconnected porosity.

The rejection of claim 11 as unpatentable over Kallisch (DE 3905080 C1), Brockmeyer "621, Morris "595 in view of Narumiya '478 is respectfully traversed. Completely absent from this combination of references is any teaching or suggestion of a skin having a substantially uniform interconnected porosity. There is no suggestion that there would be any advantage to such a structure.

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The references cited but not relied upon have been reviewed but are not believed to be pertinent.

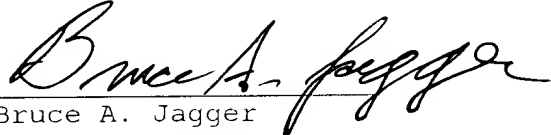
This application is now believed to be in condition for immediate allowance and the prompt issuance of a Notice of Allowance is respectfully solicited.

Respectfully submitted,

BRUNTON & JAGGER

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